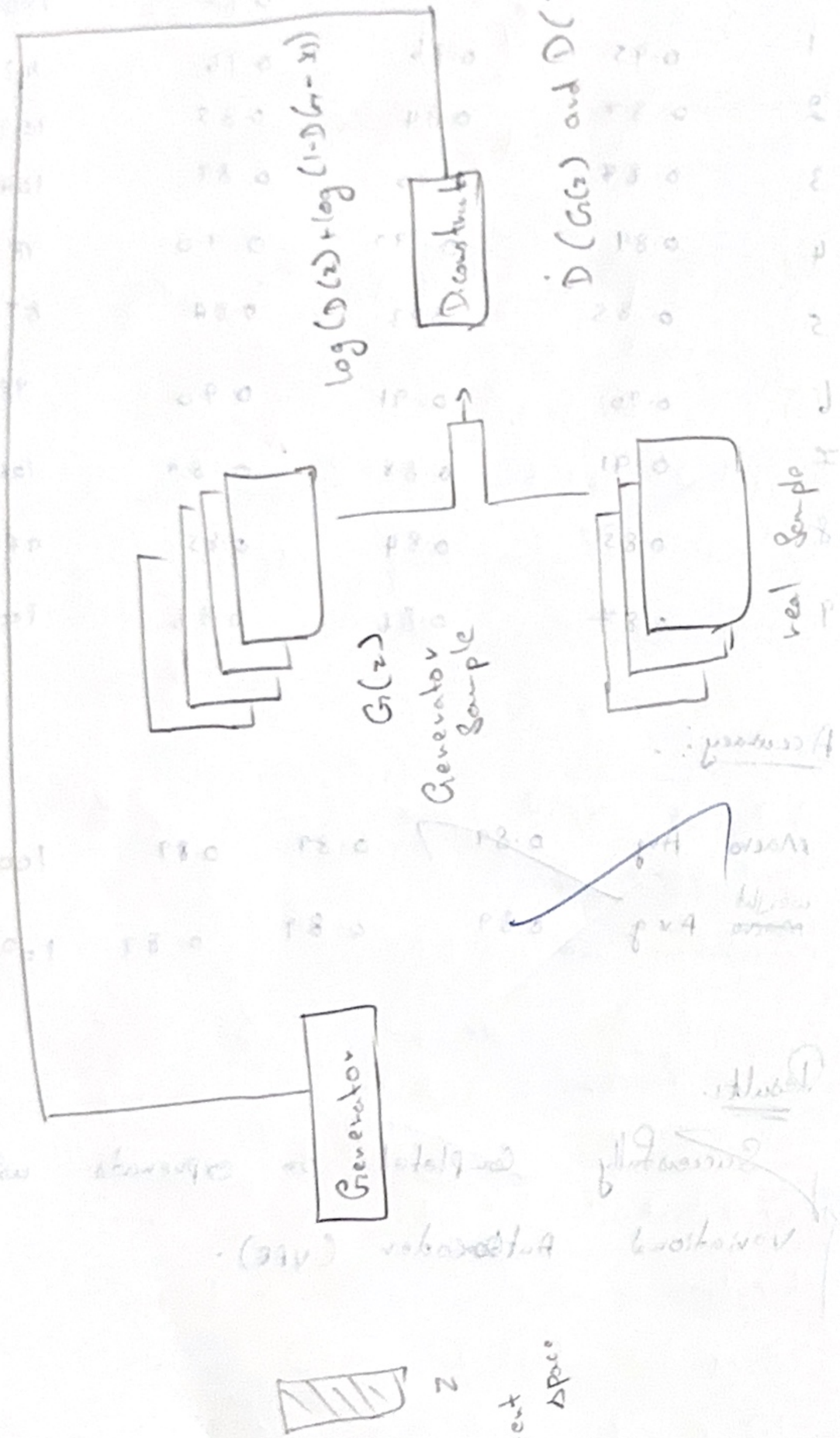


Exp 11 21 -

Implement a Deep Convolutia GAN to generate complex color image.

Aim :-

To implement a Deep Convolution GAN that generates complex looking color image and to evaluate generate image via a simple classifier producing a classificat

objective :-

1.) Implement a light weight Deep Convolution GAN.
2.) Create a Simple Coloured - Shaped dataset (32x32 RGB).
3.) Train the GAN and plot training loses.
4.) Generate images samples and save an image.
5.) Observe and report findings.

Pseudocode :-

1.) Build a Synthetic RGB dataset (colourshape). that Produces Coloured Shapes on 32 x 32.

2.) Deep Convolution GAN.

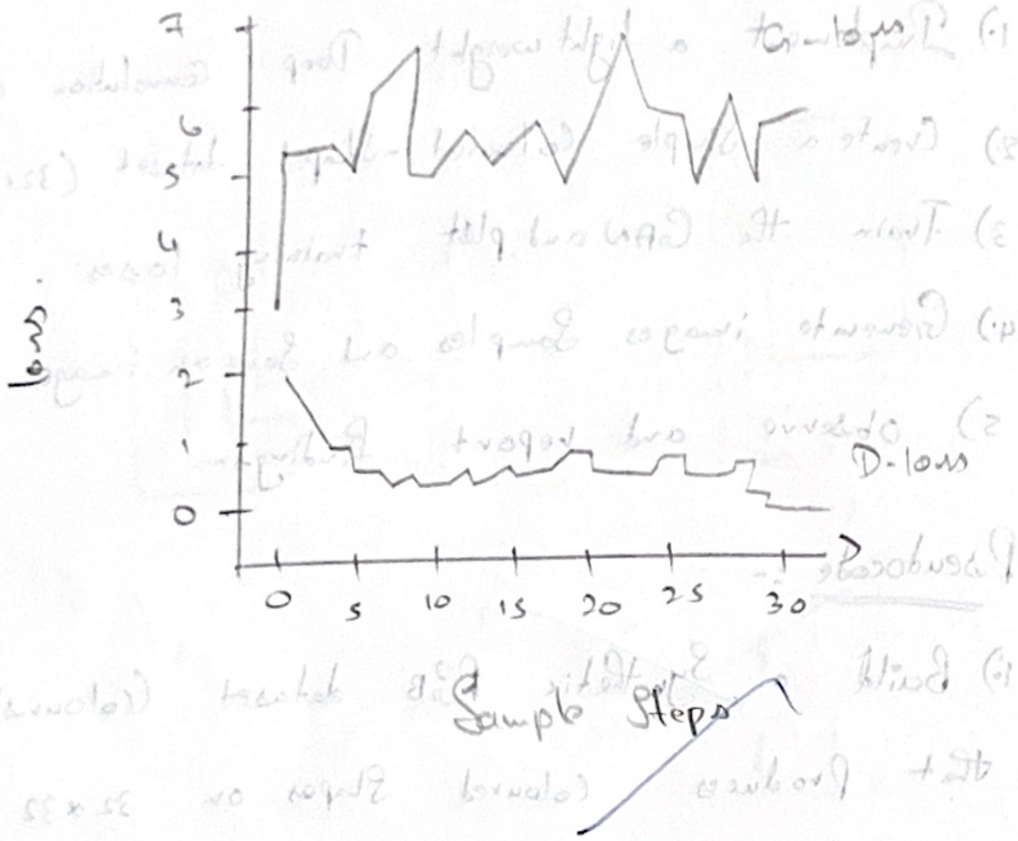
- Generate :- ConvTrans pose layer → Batch nar.

Tanh ; output 32*32 x 3.

3.) Train loop :-

- For each batch :-
  - update Dimension or real batch (lable=1) and take batch (label=0).
  - update Generate to fool Dim(label =1 for generated outputs).
  - Collut loses....

GAN losses



4) After training :-

- Generate a grid of samples from fixed noise vectors.
- Build evaluation set :- N real images + N.
- Train a small CNN classifier on real vs fake.
- Compute classification report.

Observation :-

- Observation 1 (Training) :- Generator and discriminator losses stable in sample quality comes balanced updates.
- Observation 2 (Samples) :- After training, generated images colored shaped similar to the dataset but may show artifacts.

Result :-

The implemented DeGAN successfully generated Colo- images -